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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,844	07/25/2003	Jinhun Joung	2003P07969 US	2648

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EXAMINER	
MALEVIC, DJURA	

ART UNIT	PAPER NUMBER
2884	

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/627,844	JOUNG ET AL.
	Examiner	Art Unit
	Djura Malevic	2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/8/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soluri et al. (US Pub. 2002/0175289 A1) in view of Hase et al. (US patent 5,099,134).

Regarding claims 1,19 and 28, Soluri discloses a collimator device comprising a grid of collimation square holes (Fig 2), and a reflecting layer 24 with at least a portion of the surfaces of said sheets in which pixellated scintillators 30 are individually located in each of said collimation square holes [0037]. Soluri does not disclose that the square holes are formed by a plurality of sheets, wherein each sheet having evenly spaced slots for insertion of other sheets to form the collimator. Hase teaches that the septa section of the collimator includes a plurality of plates (sheets), made of tungsten or lead alloy, having focused slits for inserting other plates to form the collimator (Abstract). Hase and Soluri are analogous art because they are from the same field of endeavor, collimators.

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Soluri to include sheets having evenly spaced slots for inserting other sheets to form a collimator such as that taught by Hase in order to ease assembling and manufacturing yield (Col. 1, Line 40 - 52).

Regarding claims 2 and 20, Soluri discloses that optically reflecting material maximizes light intensity of pixellated scintillators [0045].

Regarding claims 3 and 21, Soluri discloses that the pixellated scintillators are scintillation crystals [0037].

Regarding claims 4 and 22, Soluri discloses that the pixellated scintillators having a square-shaped configuration [0037].

Regarding claims 5-7 and 23-25, Soluri discloses that the pluralities of sheets are formed by tungsten or lead, which have a high density [0033].

Regarding claims 8, 9, 26 and 27, Soluri discloses the use of an optical reflecting material [0039] however; Soluri does not disclose using TiO_2 and MgO as the reflecting material. It would have been obvious to include TiO_2 and MgO as the reflecting material, since it is conventionally used in that environment and would make the reflectance more efficient in view of what is old and well known in the art.

Regarding claim 10, Soluri discloses a collimator device comprising a grid of collimation square holes (Fig 2), and a reflecting layer 24 with at least a portion of the surfaces of said sheets in which pixellated scintillators 30 are individually located in each of said collimation square holes [0037]. Furthermore, Soluri discloses a photomultiplier (detector) coupled to pixilated scintillator [0050]. Soluri does not disclose that the square holes are formed by a plurality of sheets, wherein each sheet having evenly spaced slots for insertion of other sheets to form the collimator. Hase teaches that the septa section of the collimator includes a plurality of plates (sheets), made of tungsten or lead alloy, having focused slits for inserting other plates to form the collimator (Abstract). Hase and Soluri are analogous art because they are from the same field of endeavor, collimators.

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Soluri to include sheets having evenly spaced slots for inserting other sheets to form a collimator such as that taught by Hase in order to ease assembling and manufacturing (Col. 4, Line 12).

Regarding claim 11, Soluri discloses that optically reflecting material maximizes light intensity of pixellated scintillators [0045].

Regarding claim 12, Soluri discloses that the pixellated scintillators are scintillation crystals [0037].

Regarding claim 13, Soluri discloses that the pixilated scintillators having a square-shaped configuration [0037].

Regarding claims 14, 15 and 16, Soluri discloses that the pluralities of sheets are formed by tungsten or lead, which have a high density [0033].

Regarding claims 17 and 18, Soluri discloses the use of an optical reflecting material [0039] however; Soluri does not disclose using TiO_2 and MgO as the reflecting material. It would have been obvious to include TiO_2 and MgO as the reflecting material, since it is conventionally used in that environment and would make the reflectance more efficient in view of what is old and well known in the art.

Regarding claims 28, Soluri discloses a building block for a collimator device comprising a grid of collimation square holes (Fig 2), and a reflecting layer 24 with at least a portion of the surfaces of said sheets in which pixellated scintillators 30 are individually located in each of said collimation square holes [0037]. Soluri does not disclose that the square holes are formed by a plurality of sheets, wherein each sheet having evenly spaced slots for insertion of other sheets to form the collimator. Hase teaches that the septa section of the collimator includes a plurality of plates (sheets) having focused slits for inserting other plates to form the collimator (Abstract). Hase and Soluri are analogous art because they are from the same field of endeavor, collimators.

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Soluri to include sheets having evenly spaced slots for inserting other sheets to form a

collimator such as that taught by Hase in order to ease assembling and manufacturing yield (Col. 1, Line 40 - 52).

Also, the functional recitation "which pixellated scintillators are placed" has not been given patentable weigh because it is narrative in form. In order to be given patentable weight, a functional recitation must be expressed as a "means" for performing the specified function and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. For example the building block acts the same if the collimator does or does not comprise the pixellated scintillator.

Response to Arguments

With regards to the Remarks filed 2/8/2006 pertaining to the rejection of claims 1-27, Examiner agrees that Soluri's collimator is fabricated by a cumbersome process and for that reason it would have been obvious to modify Soluri to include Hases' teachings. Hase teaches an improved collimator that is less complicated to construct in addition to improving the manufacturing yield (Col 1 Line 41 – line 52). The Examiner also agrees that Hase teaches a fan-beam collimator however, Hase also teaches a parallel-beam collimator embodiment (Col.4, Line 66) (Figure 2) which is fundamentally the same collimator as taught by Soluri.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

With regards to the Remarks filed 2/8/2006 pertaining to the rejection of claim 28, Applicant's arguments with respect to claim 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schmand et al. (US Pub. 2004/0140431 A1) discloses a grid array, adapted to receive a plurality of scintillators used in association with an imaging device. Also, Cusano (US Paten 4,187,427) teaches a structure for collimated scintillation detectors using optically reflective material like magnesium oxide, barium sulfate..etc.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Djura Malevic whose telephone number is (571) 272-5975. The examiner can normally be reached on Monday thru Friday between 8:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER